National Weather Service
Aberdeen, South Dakota

October 2010

Inside this issue:

Winter Weather Preparedness

South Dakota Winter Weather Preparedness Day
October 27th

Minnesota Winter Weather Preparedness Week
November 8th-12th

Even though the upper plains have enjoyed a mild and pleasant fall, the cool nights and color filled trees are an indication that old man winter is headed our way. It can be difficult to change one's focus from mowing the yard to shoveling the driveway. To assist in refocusing on the hazards that winter weather can bring, time has been set aside devoted to the hazards of winter weather. In South Dakota, Winter Weather Preparedness Day is October 27th. In Minnesota, Winter Weather Preparedness week will be November 8-12.

A little bit of attention paid to minor details during these pleasant days of fall will pay off during the long winter season. Do those drafty windows need a quick shot of caulking? Are you afraid that the battery in the family vehicle won't make it another winter? Do you remember what the various winter weather advisories, watches and warnings mean? Take a little bit of time and visit the websites listed below to brush up on winter weather definitions, tidbits and safety items.

dps.sd.gov/emergency_services/emergency_management/documents/Winter10.pdf
www.weather.gov/aberdeen

www.weather.gov/minneapolis

www.winterweather.state.mn.us

Weather Observers Honored

Jim Scarlett (left), Meteorologist-In-Charge, WFO Aberdeen presenting the Thomas Jefferson Award to Charles Bowar

Lynn Maximuk (left), Director, National Weather Service Central Region, presenting the John Campanius Holm award to Tom Bartholomew

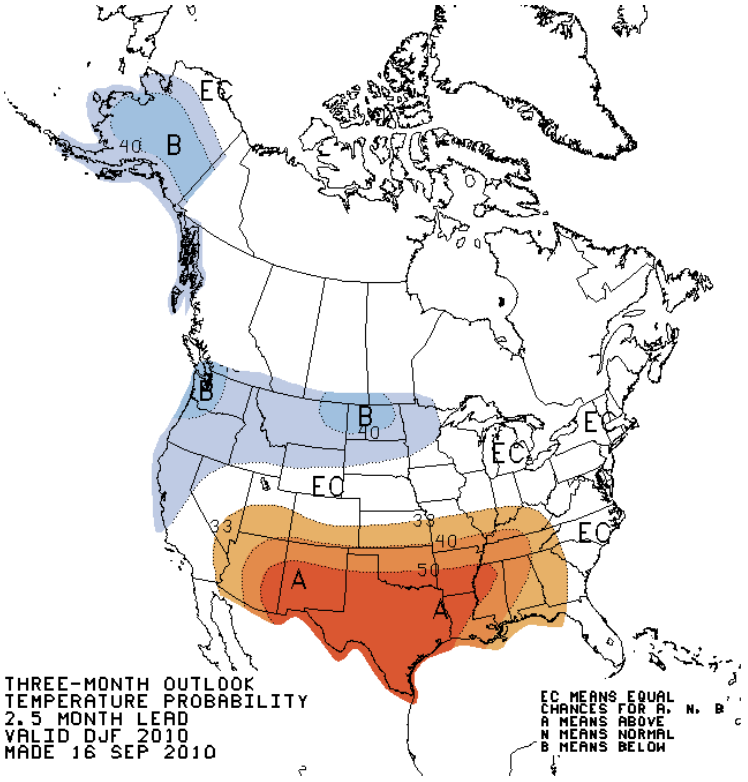
Recognizing more than 40 years of dedication, NOAA's National Weather Service has named Kennebec, S.D., resident Charles Bowar as a 2010 recipient of the agency's Thomas Jefferson Award for outstanding service in the Cooperative Weather Observer program. The award is the agency's most prestigious, and only five were presented this year to deserving cooperative weather observers from around the country.

Bowar, 77, established the Kennebec observing site May 1, 1969, recording daily temperature and precipitation data, including snowfall, snow depth and evaporation, to the Aberdeen forecast office. His reports have provided important data to Aberdeen forecasters and hydrologists and climate scientists. Over the years, the Korean War veteran has provided nearly 15,000 daily reports to the National Weather Service.

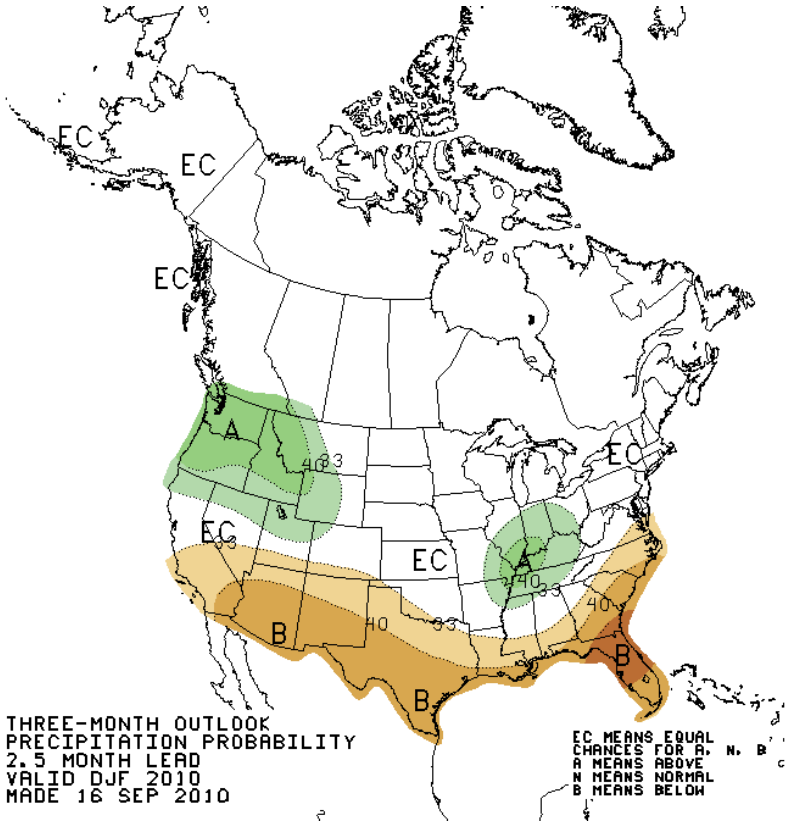
On Thursday, Aug 26th, Tom Bartholomew of Faulkton South Dakota was presented with the John Campanius Holm Award for outstanding service in the Cooperative Weather Observer Program. The award is the agency's second most prestigious and only 25 are presented this year to cooperative weather observers from around the country.

Tom began taking weather observations for the weather service in November of 1984. For the past 26 years, Tom has faithfully recorded his observation each morning, continuing a history of weather observations that dates back to January, 1892. One of Tom's most memorial weather events was the winter of 1996/1997. During that winter, Tom measured 111 inches of snow making it the snowiest winter on record for Faulkton SD. The snow was piled so high that winter Tom could stand on top of the snow and inspect the roof of his house.

Winter Outlook



Temperature outlook for December through February...calls for below normal temperatures for much of South Dakota and western Minnesota.



Precipitation outlook for December through February...calls for equal chances of below...near or above normal precipitation across the Northern Plains.

So, just how warm was it this summer?

After two consecutive summers of not reaching 100+ degrees at Pierre and Mobridge, that streak was broken this summer. On July 17th Pierre reached 106 degrees, with 108 degrees on August 27th being the warmest day of the summer. On June 30th Mobridge reached 100 degrees, with 106 degrees on August 27th being the warmest day of the summer. The triple digit heat was shared among many sites west of the Missouri River, with Murdo reaching 104 degrees on August 28 and McLaughlin also topping out at 104 degrees on the 23rd of August.

However the trend of not seeing triple digit heat during the summer continued for the east central and northeast part of the state. The hottest day that those in Aberdeen experienced was 96 degrees on July 17th and again on August 22nd. 96 degrees was also the warmest reading seen in Sisseton on July 17th. Watertown's warmest temperature was 94 on August 8th, while those in the vicinity of Clear Lake only warmed to 92 degrees on July 18th and again on August 9th.

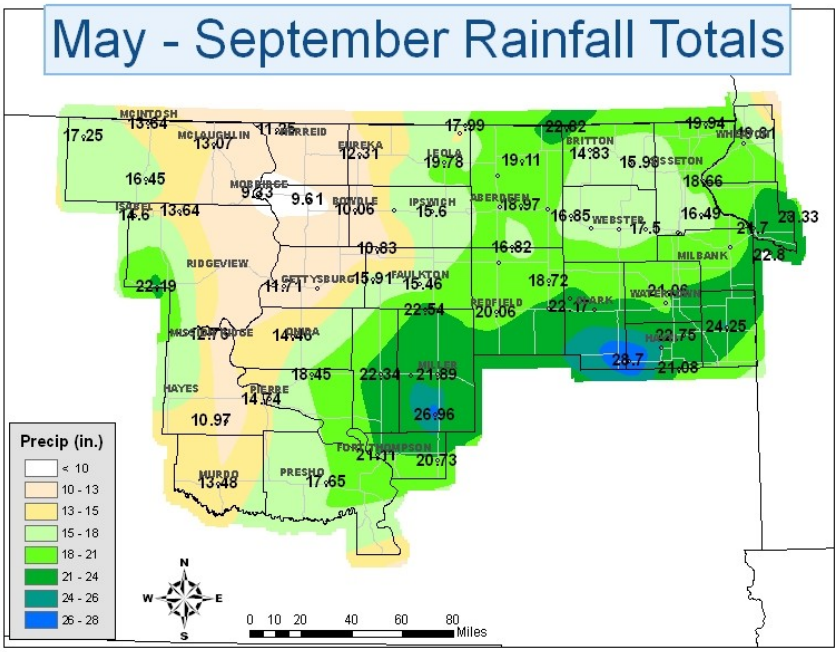
The last time Aberdeen and Watertown reached 100+ degrees was back on July 7th, 2007 when Aberdeen reached 102 degrees and Watertown reached 100 degrees.

Summer Rainfall

The 2010 convective season rainfall (May through September) across central and northeast South Dakota as well as west central Minnesota varied from very dry to extremely wet. While areas across north central South Dakota were experiencing worsening drought conditions throughout much of the summer, parts of central and northeast South Dakota were experiencing frequent periods of heavy rain with the subsequent flooding conditions. The drought conditions across north central South Dakota did improve during September as rainfall returned to the area. The hardest hit areas with frequent bouts of heavy rainfall were from Buffalo County up through Hyde, Hand and Spink counties and east through Clark, Hamlin, Codington, Grant, Deuel, and Big Stone counties.

The May through September rainfall map shows how the rainfall varied across the region. The five-month rainfall for several locations in north central South Dakota was just around 10 inches. Locations from central to northeast South Dakota from Fort Thompson to Highmore east over to Bryant, Clear Lake, and Ortonville, Minnesota received anywhere from 20 to 29 inches. Mobridge was the driest location in north central South Dakota with 9.33 inches of rainfall. Bryant, in northeast South Dakota, received the most rainfall in the five-month period with 28.70 inches which is nearly two and a half feet of rainfall.

One of the more dramatic rainfall differences across a short distance was from Onaka to Orient in Faulk County. Within a 30 mile distance, the rainfall ranged from 10.83 inches at Onaka to 22.54 inches at Orient, nearly 12 inches. Other areas of interest were in western Dewey County (22.19 inches at Eagle Butte) and in Northwest Marshall County (22.82 inches 9 miles northwest of Britton). In Western Dewey County, Eagle Butte received 10.50 inches in June which was predominantly from a slow moving supercell thunderstorm. The nearly 23 inches of rainfall northwest of Britton in northwest Marshall County was the result of many thunderstorms rolling across the region. Finally, the most interesting fact about the May through September rainfall amounts was that many of these amounts were near to above the total yearly (January through December) normal precipitation amounts for these locations. In fact, many locations from central through northeast South Dakota and into west central Minnesota were from 1 to 2 inches above their yearly averages with Bryant nearly 4 inches above its yearly average precipitation.



2010 Summer Recap

Looking back through the past summer, it was quite active weather wise across the region. From tornados to flash flooding, record size hail to 100+mph winds, we experienced the full spectrum of severe weather this summer.

April:

Severe weather season kicked off on April 12th with hail up to the size of golf balls falling across parts of northeast and north central South Dakota. In addition, much of the area was dealing with widespread flooding as a result of the spring snowmelt coupled with high ground water levels. Many local rivers, streams and creeks were out of their banks.

May:

The flooding continued into the month of May. High water levels also created issues for those living along local lakes…especially along lakes in northeast South Dakota. The region's big tornado outbreak occurred May 22, with 8 separate tornado touchdowns documented across Walworth, Edmunds and northern Brown counties. The most notable of these touchdowns occurred just to the north of Bowdle. The tornado was rated an EF-4 tornado with wind speeds from 166 mph to 200 mph. This was the first EF-4 tornado since the Manchester tornado in 2003, and was only the 7th F4/EF4 tornado since 1950. This was closely followed by a large hail and wind event on the 24th of May. Golfball hail and winds to 90mph were reported across central and northeast South Dakota.

June:

The active pattern continued into June, with another tornado event occurring on the 16th of June. Several structures in the town of Dupree were damaged by the tornado along with damage to a farmstead north of Eagle Butte. A wind gust to 109mph was recorded at Bear Creek. Many thunderstorms that formed that month dropped very heavy rainfall in a short amount of time, which only exasperated the flooding that was still ongoing.

July:

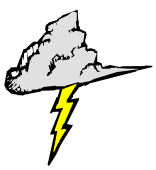
There was no letup in the severe weather heading into the middle of summer and July would become the month known for very large hail. The month began with thunderstorms producing wind gusts over 70 mph on the 3rd across central South Dakota, with more 70+ mph winds, quarter size hail and flash flooding across central and northeast South Dakota. On the 17th golfball to baseball size hail developed over Aberdeen and moved quickly southeast into Clark, Hamlin and Deuel counties. The hail was driven by 60+ mph winds, and quickly shredded any crops in its way. Widespread property damage due to the hail was also reported. However, this was only a sign of things to come. On the 23rd, a supercell developed across Jones county and moved southeast into Lyman county. The storm produced very large hail, including a new US record (width and weight) hailstone that fell in the little town of Vivian. The stone measured 8 inches across, had a diameter of over 18 ½ inches and weighed nearly 2 pounds. Nearly every resident in Vivian had hail damage and some motorists on I-90 were injured as the large hail smashed through windshields and side windows. To round out the month, Rosehill dam in southeast Hand County failed during the early morning hours of the 30th. 5 to 10 inches of rain were reported just upstream from the dam, and lead to its eventual failure.

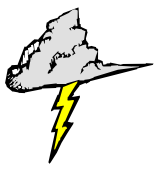
August:

The severe weather season finally began to wind down a bit, with only a few scattered 60+ mph winds or quarter size hail reports through the first part of the month. The most notable event for August occurred on the 30th, with widespread 65 to 70 mph winds across areas of northeast South Dakota. Damage to houses, trees and agricultural structures were common as the storms passed through.

September :

Under normal conditions, September sees very little severe weather activity. However, September 2nd was a busy day across mainly Faulk and Spink counties with numerous quarter size hail reports. In addition, a tornado touched down in the vicinity of Tulare and thunderstorm winds toppled telephone poles also near Tulare. Golfball hail was reported near Kennebec on the 15th along with 40mph winds and 2 ½ inches of rainfall. On the same date, 1 inch hail covered the ground near Pierre and was driven by 40 to 45 mph winds.





New Employee

Andrew Church

Lead Forecaster

Born and raised in Albuquerque, New Mexico, I began my quest to become a weather forecaster at the University of New Mexico in the early 1990's. I began my National Weather Service career as a forecaster in Salt Lake City, UT and decided to become more involved with fire weather as an incident meteorologist in the Missoula, MT and Riverton, WY weather forecast offices. I have a strong science background in climate and tornado research serving as a Science Research Assistant with National Center for Atmospheric Research, as well as receiving a Masters Degree in Meteorology from the University of Utah in 2001. I am, at the end of the day, a family man with two beautiful daughters and wonderful wife. I enjoy watching college and pro football and basketball, and eating pizza and any spicy food I can get my hands on.

Remember to turn your clocks back at 2 am on November 7th.

Wind Chill Chart

Wind (mph) \ Temperature (°F)	40	35	30	25	20	15	10	5	0	-5	-10	-15	-20	-25	-30	-35	-40	-45
5	36	31	25	19	13	7	1	-5	-11	-16	-22	-28	-34	-40	-46	-52	-57	-63
10	34	27	21	15	9	3	-4	-10	-16	-22	-28	-35	-41	-47	-53	-59	-66	-72
15	32	25	19	13	6	0	-7	-13	-19	-26	-32	-39	-45	-51	-58	-64	-71	-77
20	30	24	17	11	4	-2	-9	-15	-22	-29	-35	-42	-48	-55	-61	-68	-74	-81
25	29	23	16	9	3	-4	-11	-17	-24	-31	-37	-44	-51	-58	-64	-71	-78	-84
30	28	22	15	8	1	-5	-12	-19	-26	-33	-39	-46	-53	-60	-67	-73	-80	-87
35	28	21	14	7	0	-7	-14	-21	-27	-34	-41	-48	-55	-62	-69	-76	-82	-89
40	27	20	13	6	-1	-8	-15	-22	-29	-36	-43	-50	-57	-64	-71	-78	-84	-91
45	26	29	12	5	-2	-9	-16	-23	-30	-37	-44	-51	-58	-65	-72	-79	-86	-93
50	26	19	12	4	-3	-10	-17	-24	-31	-38	-45	-52	-60	-67	-74	-81	-88	-95
55	25	18	11	4	-3	-11	-18	-25	-32	-39	-46	-54	-61	-68	-75	-82	-89	-97
60	25	17	10	3	-4	-11	-19	-26	-33	-40	-48	-55	-62	-69	-76	-84	-91	-98

Frostbite Times: 30 minutes | 10 minutes | 5 minutes

$$\text{Wind Chill (°F)} = 35.74 + 0.6215T - 35.75(V^{0.16}) + 0.4275T(V^{0.16})$$

Where, T= Air Temperature (°F) V= Wind Speed (mph)

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NATIONAL WEATHER SERVICE

824 Brown County 14 South
Aberdeen, SD
57401

Phone: 605-225-0519

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www.weather.gov/aberdeen

Bittersweet October. The mellow, messy, leaf-kicking perfect pause between the opposing miseries of summer and winter.

~Carol Bishop Hipps